

FORM PTO-1390 (Modified)
(REV 11-2000)

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NUMBER

**TRANSMITTAL LETTER TO THE UNITED STATES
DESIGNATED/ELECTED OFFICE (DO/EO/US)
CONCERNING A FILING UNDER 35 U.S.C. 371**

Metal 1282-WCG

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR

10/018560

INTERNATIONAL APPLICATION NO.

PCT/EP00/05874

INTERNATIONAL FILING DATE

23 June 2000 (23.06.00)

PRIORITY DATE CLAIMED

24 June 1999 (24.06.99)

TITLE OF INVENTION

METHOD OF CLEANING VALVES OR LINES

APPLICANT(S) FOR DO/EO/US

Ferdinand FINKELDEI and Walter SCHNAUS

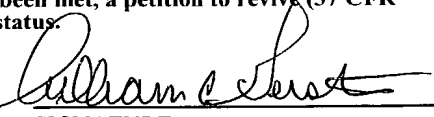
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (24) indicated below.
4. ☒ The US has been elected by the expiration of 19 months from the priority date (Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371 (c) (2))
 - a. ☐ is attached hereto (required only if not communicated by the International Bureau).
 - b. ☒ has been communicated by the International Bureau.
 - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☒ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
 - a. ☒ is attached hereto.
 - b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4).
7. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3))
 - a. ☐ are attached hereto (required only if not communicated by the International Bureau).
 - b. ☐ have been communicated by the International Bureau.
 - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
 - d. ☐ have not been made and will not be made.
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)).
10. ☐ An English language translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)).
11. ☒ A copy of the International Preliminary Examination Report (PCT/IPEA/409). (in German and English)
12. ☒ A copy of the International Search Report (PCT/ISA/210).

Items 13 to 20 below concern document(s) or information included:

13. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
14. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
15. ☐ A **FIRST** preliminary amendment.
16. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
17. ☐ A substitute specification.
18. ☐ A change of power of attorney and/or address letter.
19. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825.
20. ☐ A second copy of the published international application under 35 U.S.C. 154(d)(4).
21. ☒ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).
22. ☒ Certificate of Mailing by Express Mail
23. ☒ Other items or information:
 - a) Two sheets of Drawings (FIGS. 1 and 2), attached to English translation of Application
 - b) Letter to Official Draftsman, enclosing two sheets of Drawings, FIGS. 1 and 2)
 - c) Copy of Request
 - d) Appendix

10/018560 PCT/EP00/05874 7 DEC 2001

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR 1.53) 10/018560		INTERNATIONAL APPLICATION NO. PCT/EP00/05874	ATTORNEY'S DOCKET NUMBER Metal 1282-WCG
24. The following fees are submitted:. BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)) : <input type="checkbox"/> Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO \$1040.00 <input checked="" type="checkbox"/> International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO \$890.00 <input type="checkbox"/> International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO \$740.00 <input type="checkbox"/> International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4) \$710.00 <input type="checkbox"/> International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfy provisions of PCT Article 33(1)-(4) \$100.00 ENTER APPROPRIATE BASIC FEE AMOUNT =			CALCULATIONS PTO USE ONLY
Surcharge of \$130.00 for furnishing the oath or declaration later than months from the earliest claimed priority date (37 CFR 1.492 (e)). <input type="checkbox"/> 20 <input type="checkbox"/> 30			\$890.00
Total claims: 6 - 20 = 0 x \$18.00			\$0.00
Independent claims: 1 - 3 = 0 x \$84.00			\$0.00
Multiple Dependent Claims (check if applicable). <input type="checkbox"/>			\$0.00
TOTAL OF ABOVE CALCULATIONS =			\$890.00
<input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27). The fees indicated above are reduced by 1/2.			\$0.00
SUBTOTAL =			\$890.00
Processing fee of \$130.00 for furnishing the English translation later than months from the earliest claimed priority date (37 CFR 1.492 (f)). <input type="checkbox"/> 20 <input type="checkbox"/> 30 +			\$0.00
TOTAL NATIONAL FEE =			\$890.00
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31) (check if applicable). <input type="checkbox"/>			\$0.00
TOTAL FEES ENCLOSED =			\$890.00
			Amount to be: refunded \$
			charged \$
a. <input type="checkbox"/> A check in the amount of _____ to cover the above fees is enclosed.			
b. <input checked="" type="checkbox"/> Please charge my Deposit Account No. 14-1263 in the amount of \$890.00 to cover the above fees. A duplicate copy of this sheet is enclosed.			
c. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 14-1263 A duplicate copy of this sheet is enclosed.			
d. <input type="checkbox"/> Fees are to be charged to a credit card. WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.			
NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.			
SEND ALL CORRESPONDENCE TO:			
William C. Gerstenzang NORRIS, MCLAUGHLIN & MARCUS, P.A. 220 East 42nd Street, 30th Floor New York, New York 10017 Tel. No.: 212-808-0700 Fax No.: 212-808-0844		 SIGNATURE William C. Gerstenzang NAME 27,552 REGISTRATION NUMBER December 17, 2001 DATE	

10/018560
JC03 Rec'd PCT/PTO 17 DEC 2001

Attorney Docket No.: Metal 1282-WCG
: 99 00 82 US / A 7959

#6/a

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s) : Ferdinand FINKELDEI and Walter SCHNAUS
PCT Application No. : PCT/EP00/05874
For : METHOD OF CLEANING VALVES OR LINES
Serial No. : To Be Assigned
Filed : Herewith
Art Unit : To Be Assigned
Examiner : To Be Assigned

December 17, 2001

BOX PCT
Hon. Assistant Commissioner For Patents
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Sir:

In advance of prosecution, the Examiner is respectfully requested to amend the application as follows and consider the following remarks:

IN THE CLAIMS

Please cancel all the claims and substitute the following:

Claim 5. Method of cleaning valves or lines through which hydrolysable polymers are transported in which, after the polymer stream has been shut off and the polymer has been evacuated, steam is passed through the valves or lines to be cleaned while the lines or valves to be cleaned are maintained at plus/minus 10°C of the

temperature at which they operate during transportation of said polymers; with the steam being introduced via hydrolysis valves set in the wall of the valve housing or the lines and discharged via emptying apertures, wherein each hydrolysis valve comprises a heated housing, in the form of a guide cylinder, and is provided with a side steam supply line, a valve piston which can be moved in the axial direction in the guide cylinder, a valve block, which, in the closed position, engages into a valve seat which has an elongated opening cone and is set in the wall of the housing of the valve or line to be cleaned, and a valve block headpiece, which, in the closed valve position, terminates flush with the inside surface of the wall of the housing of the valve or line to be cleaned.

Claim 6. Method according to Claim 5, wherein the supplied steam has a pressure of from 1 to 2 bar absolute.

Claim 7. Method according to Claim 5, wherein the amount of steam is an amount which will hydrolyze polymer residue in the lines or valves without cooling them.

Claim 8. Method according to Claim 5, wherein the steam is passed through the valves or lines until the condensate of the steam exiting at the emptying apertures is free from hydrolytic degradation products of the polymer.

Claim 9. Method according to Claim 6, wherein the steam is passed through the valves or lines until the condensate of the steam exiting at the emptying apertures is free from hydrolytic degradation products of the polymer.

Claim 10. Method according to Claim 7, wherein the steam is passed through the valves or lines until the condensate of the steam exiting at the emptying apertures is free from hydrolytic degradation products of the polymer.

REMARKS

The application includes two sets of claims, one set of which is set forth as an "amended sheet", as is the practice during the International Stage.

In order to avoid any confusion as to which set of claims is being prosecuted, and to conform the claims to conventional format, Applicants have canceled all of the claims and provided new ones.

The new claim numbering begins with "5", as Applicants believe that the application, prior to entry of the Preliminary Amendment, includes the four claims of the amended sheet, and that the original five claims are no longer in the application, having been replaced by the amended sheet of claims during the International Stage.

For the record, Applicants emphasize that although the claims were amended, and, therefore, might be argued to have been amended for a reason substantially related to patentability, a fair reading of the amended claims will reveal that the departures from the previous claims were for clarification purposes only, and that Applicants did not narrow the claims in any material respect. Therefore, Applicants submit that the amended claims are entitled to the full range of equivalents.

Lurgi Zimmer AG, Borsigallee 1, D-60388 Frankfurt am Main

Method of cleaning valves or lines

Description:

- 5 The present invention relates to a method of cleaning valves or lines through which hydrolysable polymers are transported at the operating temperature.

The term "hydrolysable polymers" here is taken to mean thermoplastic polyesters, polyamides or polycarbonates, such as polyethylene
10 terephthalate or naphthalate, polypropylene terephthalate or naphthalate, polybutylene terephthalate or naphthalate, polyamide 6 or 6.6, poly(bisphenol A carbonate) or copolymers thereof.

The preparation and processing of polymer melts or high-viscosity polymer solutions frequently requires the polymer stream to be split into sub-
15 streams, for example if a plurality of processing positions are connected simultaneously. The flow splitting is usually carried out by means of a plurality of valves, where each individual valve may be closed or open intermittently. In order to maintain the flowability of the polymer solutions and particularly of the polymer melts, high operating temperatures of up to
20 about 300°C are necessary, resulting, with the valve closed, in decomposition of the polymer residues remaining in the valve to give carbon-like products. Even closed polymer valves may develop leaks at the seats due to design and production flaws and damage during start-up or in operation. This may result in total blockage of the following line. After a re-start, the
25 polymer decomposition products are entrained by the polymer stream, contaminating the fresh polymer, which then inevitably has to be discarded or at best can be converted into low-quality products.

It is known that polymer filters can be cleaned by treatment with steam (DE 196 49 013 A) or a mixture of steam and an oxidising gas (EP 0 791 386 A)
30 in the filter housing or in a closed tank after removal. However, the cleaning does not extend to the polymer valves and lines adjacent to the filter, which instead have to be uncoupled from the cleaning of the filter to be cleaned.

The object of the present invention is to indicate a method which enables the cleaning of valves or lines for hydrolysable polymers, where the cleaning should be carried out as far as possible in the installed state, without extensive assembly work.

- 5 This object is achieved in accordance with the invention by a method of the type mentioned at the outset which is characterised in that, after the polymer stream has been shut off and the polymer has been evacuated as far as possible, steam is passed through the valves or lines to be cleaned while the operating temperature is maintained at plus/minus 10°C, with the
10 steam being introduced via hydrolysis valves set in the wall of the valve housing or the lines and discharged via emptying apertures.

- The invention is based on the knowledge that the polymers mentioned at the outset can be hydrolysed using steam at a high temperature in the range from about 120 to 350°C. Since the operating temperature of the
15 polymer valves or lines is in the same region, separate temperature adjustment is unnecessary. It is sufficient to continue the normal heating of the valves or lines, usually jacket heating by means of heat-transfer fluid, without interruption, which results in a temperature which is approximately the same as the operating temperature plus/minus 10°C automatically
20 becoming established. The amount of steam needed is small. The amount of steam is preferably kept just sufficiently large that the product line is not cooled, but hydrolysis is maintained. For example, steam at 6 bar, which is usually readily available in production plants, can be employed after appropriate decompression, preferably to 1 – 2 bar absolute, particularly
25 preferably 1.0 – 1.3 bar. Instead of steam, it is also possible to use a mixture of steam and the vapour of a monomer on which the polymer is based, for example ethylene glycol or diethylene glycol in the case of polyethylene terephthalate. Safety (combustibility) and environmental (waste water) considerations should, however, be considered here. The
30 hydrolysis is preferably carried out in the absence of oxygen. Alternatively, depending on the polymer, the presence of oxygen may be tolerated or even be desired (hydrolytic-oxidative decomposition).

- The hydrolysis products, i.e. the cleavage products of the polymer, such as oligomers, monomers and decomposition products thereof, are partly
35 discharged together with the steam, partly together with its condensate via an emptying aperture. Suitable emptying apertures are the venting and

emptying devices which are usually present anyway, such as valves or closable lines. In the case of the cleaning of polymer valves, the emptying port is advantageously in the polymer line emanating from the valve. The steam feed is continued until the condensate of the exiting steam is free from hydrolytic degradation products of the polymer, which is normally the case after 24 hours at the latest. Visual assessment of the condensate is sufficient for this purpose. If the cleaning is due to a leaky valve, the steam feed is of course continued until the time of repair.

The method according to the invention is explained in greater detail below with reference to

Fig. 1, which shows an alternating distributor with hydrolysis valves according to the invention, and

Fig. 2, which shows a hydrolysis valve from Fig. 1 in detail.

Fig. 1 shows as an example an alternating distributor for polymer melts.

This essentially consists of the distribution chamber (1), which is connected to the product line (2), and two product valves (3) operated alternately. Each product valve (3) consists of a housing (4) which is designed as a guide cylinder and has a housing enlargement (5) on the side opposite the branching-off of the product line (6), and a valve piston (7), which is movable in the axial direction in the guide cylinder and has a valve block (8), which, in the closed valve position, engages in the valve seat (9), and a mushroom-shaped valve block headpiece (11). The polymer melt flows from the product line (2), after deflection of the flow by the mushroom-shaped headpiece (11), to the opened product valve (3), here the left-hand valve, and finally to the product line (6). The opposite flow course from the product line (6) to the product line (2) is also possible. At all times, one of the product valves (3) is opened and the other, here the right-hand valve, is closed. Without the steam feed according to the invention, the polymer residues originating from the preceding operation would decompose and gradually carbonise in the product valve (3), which is closed, but continues to be heated via the heating jacket (12). It is not sensible to switch off the heating since otherwise the polymer residues in the valve would freeze, and is not possible anyway, at least with respect to the valve region adjacent to the distribution chamber (1), since the entire distribution chamber (1) must continue to be held at the operating temperature.

In accordance with the invention, a valve seat, into which, in the closed valve position, the valve block of the hydrolysis valve (10), which is heated by means of heat-transfer fluid via the connection port (14), engages, is set in the housing wall of the product valve (3), approximately opposite the
5 branch-off of the product line (6), in the region of the housing enlargement (5) in the case of the valve (3) shown here. During cleaning of the closed product valve (3) or throughout the time for which the product valve (3) is closed, steam, preferably water vapour, is fed in via the connection port (15) with the hydrolysis valve (10) open. The steam flows around the valve
10 piston (7) as far as the valve seat (9) and exits again via the product line (6) and a venting and emptying port, which is not shown here. Not only is carbonisation of the polymer residues prevented here, but these are even removed due to gradual hydrolysis. before the cleaned product valve (3) is put back into operation, firstly the hydrolysis valve (10), subsequently the
15 condensate emptying and finally, after escape of the final residues of steam, the vents are closed.

Fig. 2 shows the construction of the hydrolysis valve (10) from Fig. 1 in detail. The hydrolysis valve (10) essentially consists of the housing (17), which is designed as a guide cylinder and heated via the heating jacket
20 (16), and the piston (18), which is axially movable therein and whose head (19) engages into the valve seat (24) with elongated opening cone (22) in the closed position. The feed of steam takes place via the port (15) set in the housing wall (17). The valve block (19) carries a headpiece (20), which is of such a design that, with the hydrolysis valve (10) closed, the wall (4) of
25 the product valve (3) has no dead space at the connection point. The valve block headpiece (20) is flush with the inside surface of the housing wall (4).

The hydrolysis valve (10) may also be set in the wall of a polymer line in the same manner as shown here through the example of a product valve (3). In this case, the steam does not flow around the valve piston (7), but
30 instead flows through the polymer line as far as the venting and emptying port.

Patent Claims

1. Method of cleaning valves or lines through which hydrolysable polymers are transported at the operating temperature and which after the polymer stream has been shut off and the polymer has been evacuated as far as possible, steam is passed through the valves or lines to be cleaned while the operating temperature is maintained at plus/minus 10°C, with the steam being introduced via hydrolysis valves set in the wall of the valve housing or the lines and discharged via emptying apertures, characterised in that the hydrolysis valve (10) consists of a heated housing (17), which is designed as a guide cylinder and has a side steam supply line (15), and a valve piston (18), which can be moved in the axial direction in the guide cylinder and has a valve block (19), which, in the closed position, engages into a valve seat (24) which has an elongated opening cone (22) and is set in the wall of the housing of the valve or line to be cleaned, and a valve block headpiece (20), which, in the closed valve position, terminates flush with the inside surface of the wall of the housing of the valve or line to be cleaned.
2. Method according to Claim 1, characterised in that the supplied steam has a pressure of from 1 to 2 bar absolute.
3. Method according to Claim 1 or 2, characterised in that the amount of steam is just sufficiently large that the valves or lines to be cleaned are not cooled and at the same time the hydrolysis is maintained.
4. Method according to one of Claims 1 to 3, characterised in that the steam is passed through the valves or lines until the condensate of the steam exiting at the emptying apertures is free from hydrolytic degradation products of the polymer.

Abstract:

10/018560

- 5 Method of cleaning valves or lines through which hydrolysable polymers are transported at the operating temperature, in which, after the polymer stream has been shut off and the polymer has been evacuated as far as possible, steam is passed through the valves or lines to be cleaned while the operating temperature is maintained at plus/minus 10°C, with the steam being introduced via hydrolysis valves set in the wall of the valve housing or the lines and discharged via emptying apertures.

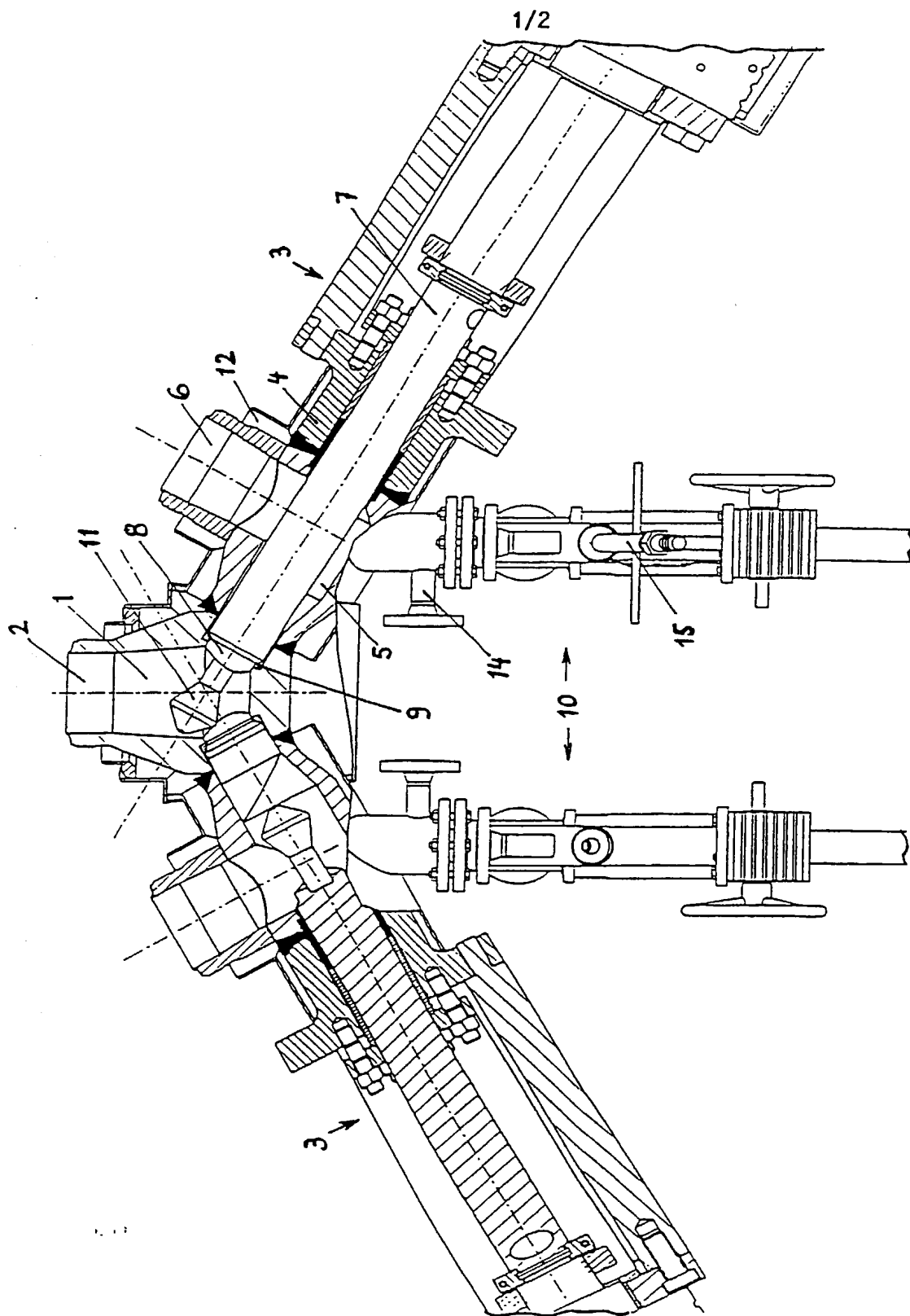
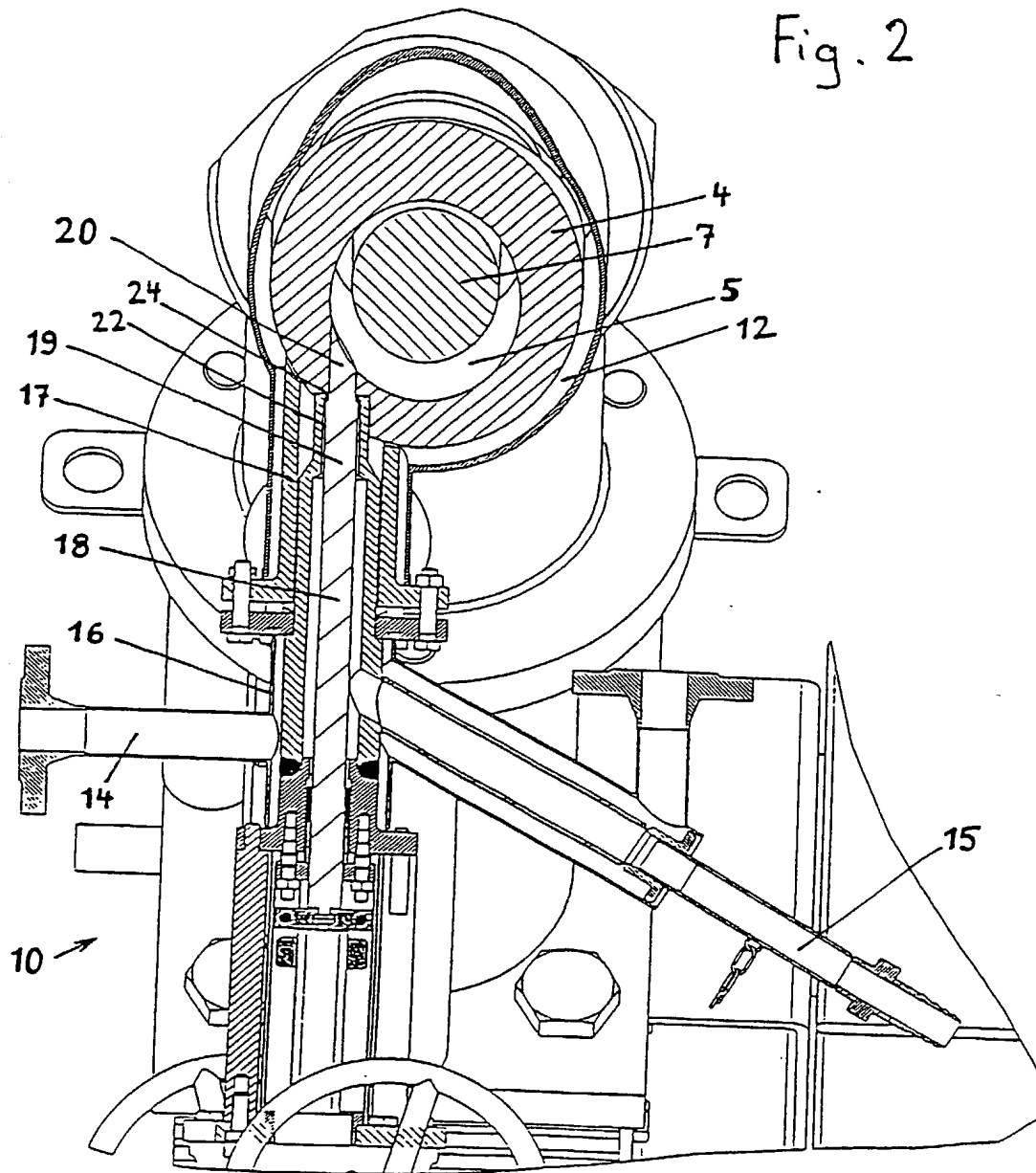


Fig. 1

Fig. 2



COMBINATION DECLARATION & POWER OF ATTORNEY

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name. I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

METHOD OF CLEANING VALVES OR LINES

the specification of which was filed on December 17, 2001

as Application Serial No. 10/018,560 and

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations §1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)			Priority Claimed
<u>199 28 859.7</u>	<u>Germany</u>	<u>24 June 1999</u>	<u>X</u> yes <u> </u> no
(Number)	(Country)	(Day/Month/Yr. Filed)	
<u> </u>	<u> </u>	<u> </u>	<u> </u> yes <u> </u> no
(Number)	(Country)	(Day/Month/Yr. Filed)	

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

<u> </u>	<u> </u>	<u> </u>
(Application Serial No.)	(Filing Date)	(Status)
		(patented,pending,abandoned)
<u> </u>	<u> </u>	<u> </u>
(Application Serial No.)	(Filing Date)	(Status)
		(patented,pending,abandoned)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punished by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith:

(7) Kurt G. Briscoe, Reg. No. 33,141; William C. Gerstenzang, Reg. No. 27,552; Lorimer P. Brooks, Reg. No. 15,155; and Bruce Londa, Reg. No. 33,531; all of 220 East 42nd Street, 30th Floor, New York, New York 10017; William R. Robinson, Reg. No. 27,224 of 721 Route 202-206 Bridgewater, New Jersey 08807; Davy E. Zoneraich, Reg. No. 37,267, Mark A. Montana, Reg. No. 44,948 and Robert A. Hyde, Reg. No. 46,354, of 721 Route 202-206, Bridgewater, New Jersey 08807, my attorneys with full power of substitution and revocation.

SEND CORRESPONDENCE TO:
NORRIS, McLAUGHLIN & MARCUS
220 EAST 42ND STREET - 30TH FLOOR
NEW YORK, NEW YORK 10017

DIRECT TELEPHONE CALLS TO:
WILLIAM C. GERSTENZANG
(212) 803-0700

FULL NAME OF SOLE OR FIRST INVENTOR: Ferdinand FINKELDEI
 INVENTOR'S SIGNATURE: _____ DATE _____
 RESIDENCE Vilbeler Landstrasse 244, D-60388 Frankfurt am Main, Germany CITIZENSHIP Germany
 POST OFFICE ADDRESS Same

20 FULL NAME OF SECOND INVENTOR: Walter SCHNAUS
 INVENTOR'S SIGNATURE: [Signature] DATE 11.02.02
 RESIDENCE Alzenauer Strasse 70, D-63517 Rodenbach, Germany CITIZENSHIP Germany
 POST OFFICE ADDRESS _____

FULL NAME OF THIRD INVENTOR: _____
 INVENTOR'S SIGNATURE: _____ DATE _____
 RESIDENCE _____ CITIZENSHIP _____
 POST OFFICE ADDRESS _____

FULL NAME OF FOURTH INVENTOR: _____
 INVENTOR'S SIGNATURE: _____ DATE _____
 RESIDENCE _____ CITIZENSHIP _____
 POST OFFICE ADDRESS _____

FULL NAME OF FIFTH INVENTOR: _____
 INVENTOR'S SIGNATURE: _____ DATE _____
 RESIDENCE _____ CITIZENSHIP _____
 POST OFFICE ADDRESS _____

FULL NAME OF SIXTH INVENTOR: _____
 INVENTOR'S SIGNATURE: _____ DATE _____
 RESIDENCE _____ CITIZENSHIP _____
 POST OFFICE ADDRESS _____

COMBINATION DECLARATION & POWER OF ATTORNEY

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name. I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

METHOD OF CLEANING VALVES OR LINES

the specification of which was filed on December 17, 2001

as Application Serial No. 10/018,560 and

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations §1.56(a).

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<u> </u> (Number)	<u> </u> (Country)	<u> </u> (Day/Month/Yr. Filed)	<u> </u> yes <u> </u> no

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Serial No.)	(Filing Date)	(Status)
		(patented,pending,abandoned)

(Application Serial No.)	(Filing Date)	(Status)
		(patented,pending,abandoned)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punished by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith:

⑦ Kurt G. Briscoe, Reg. No. 33,141; William C. Gerstenzang, Reg. No. 27,552; Lorimer P. Brooks, Reg. No. 15,155; and Bruce Londa, Reg. No. 33,531; all of 220 East 42nd Street, 30th Floor, New York, New York 10017; William R. Robinson, Reg. No. 27,224 of 721 Route 202-206 Bridgewater, New Jersey 08807; Davy E. Zoneraich, Reg. No. 37,267; Mark A. Montana, Reg. No. 44,948 and Robert A. Hyde, Reg. No. 46,354, of 721 Route 202-206, Bridgewater, New Jersey 08807, my attorneys with full power of substitution and revocation.

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